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THE BRYOLOGIST

VOL. XXI SEPTEMBER, 1918 No. 5

NOTES ON THE MOSSES OF NORTHWESTERN ONTARIO.
I. SPHAGNUM

O. E. JENNINGS

It has been my intention for some time to begin the publication of a series of notes relating to the bryophytes collected by my wife and me during the five summers we have spent in the delightfully wild and little botanized region to the north and northwest of Lake Superior. During these expeditions we have spent most of the time "roughing it," pitching our tent at some point for from two to three or four weeks and from this station working the surrounding territory, sometimes so far from our tent as to necessitate sleeping out and returning to the tent next day. During the first season, Mr. R. H. Daily was with us most of the summer, but otherwise we worked by ourselves, without the services of either cook or guide. Altogether during the summers of 1912, 13, 14, 16, and 17, we have established ourselves at twenty-one stations, some of these places having been worked two or three times at different seasons. The region thus covered extends for about two hundred miles along the "North Shore" of Lake Superior and out onto many of the islands and peninsulas, and from there northeast to the north end of Long Lake on the Kenogami River (Hudson Bay drainage); north to the north end of Lake Nipigon, about a hundred miles north of Lake Superior; and northwest to Sioux Lookout, nearly two hundred miles from Lake Superior. The whole territory embraced within these points is perhaps twice the size of the state of New Jersey, and our field numbers, including all kinds of plants, have mounted to nearly eighteen thousand.

In articles in the *American Fern Journal*[1] the natural features of the regions visited have been described to some extent. The region along the north shore of Lake Superior and to the north around what is really one of our *six* "Great Lakes," Lake Nipigon, is rough enough to be termed mountainous. Thunder Cape and St. Ignace Island along the north shore of Lake Superior rise to over twelve hundred feet above its waters, while especially around the southern end of Lake Nipigon steep knobs and even vertical cliffs rise precipitately out of the water to a height of several hundred feet. This Nipigon and North Shore region is covered very largely with a thick cap of Keewenawan diabase which has faulted in wide gaps or which has broken down vertically producing pali-

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[1] Jennings, O. E. Notes on the Pteridophytes of the North Shore of Lake Superior. Amer. Fern Journ. **3**: 38–48. June, 1913; same title—II. **4**: 68–73. Apr.–June, 1914; Notes on the Pteridophytes of Northwestern Ontario, Amer. Fern Journ. **5**: 33–39, May, 1915; An annotated List of the Pteridophytes of Northwestern Ontario. Amer, Fern Journ. **8**: 38–50 and 76–88. Apr.–June and July–Sept., 1918.

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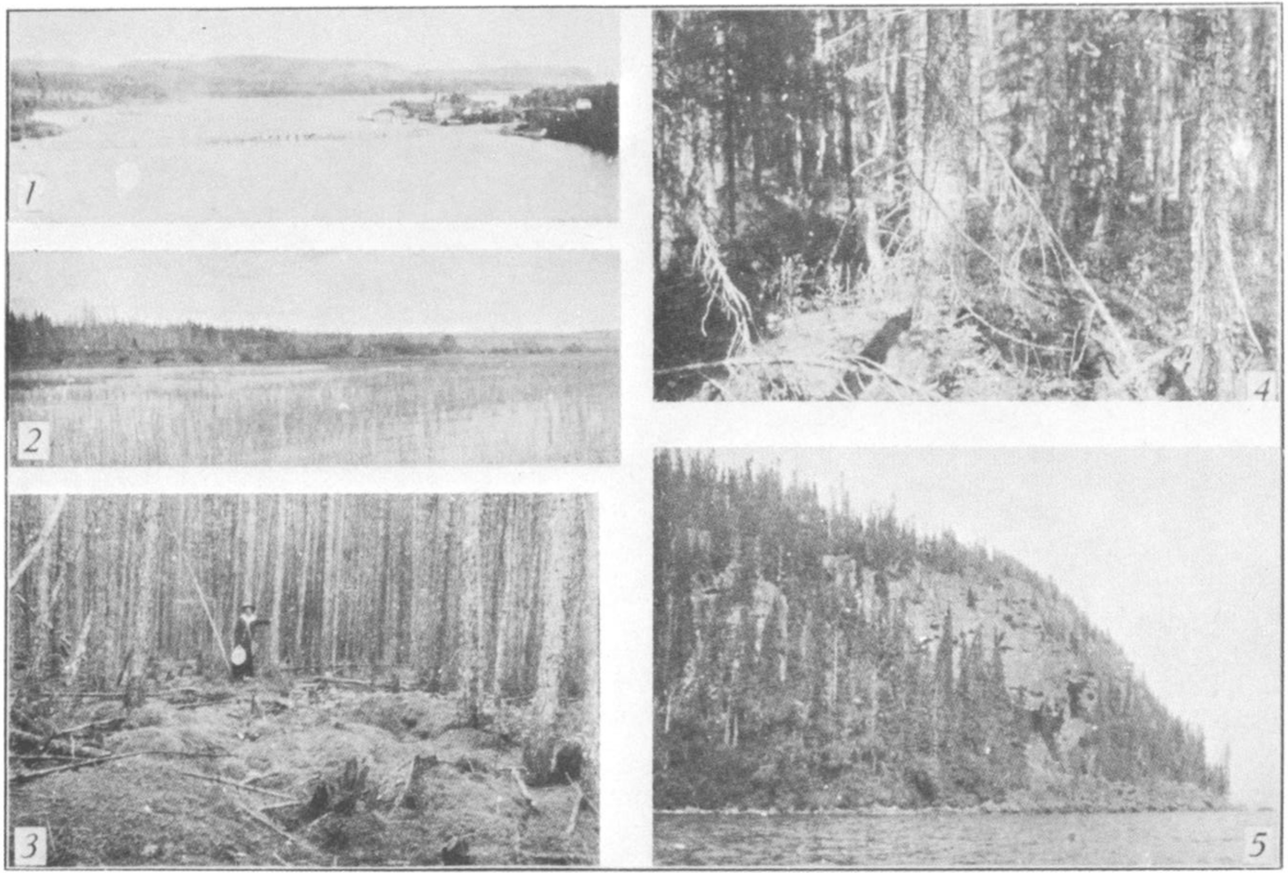
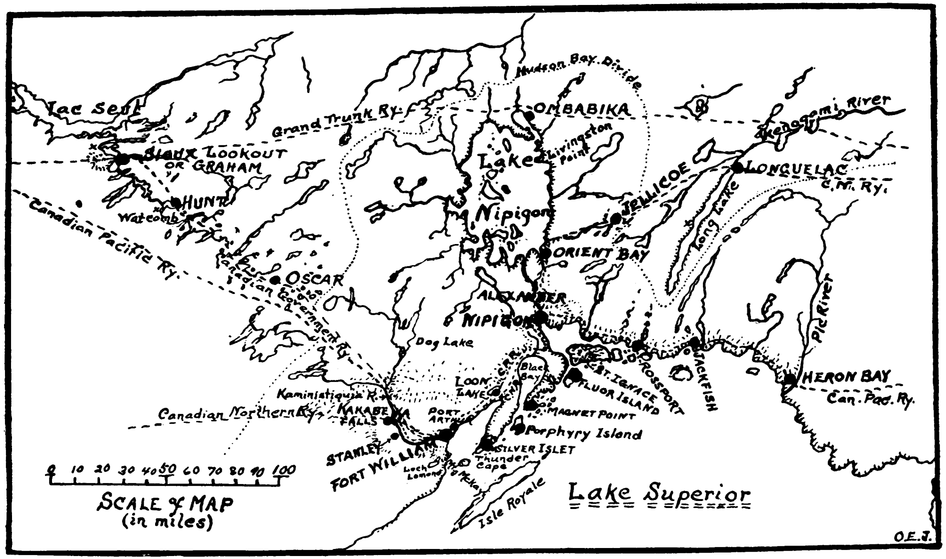


Characteristic Plant Habitats, Nipigon Region, Ontario
Figs. 1 and 3 near Nipigon; 2, 4, and 5 at north end of Lake Nipigon. *See* Explanation of Plate, p. 78



Portion of Northwestern Ontario

Map showing by black dots the localities in northwestern Ontario which were used one or more times as bases or stations from which to botanize the surrounding territory during the years 1912, 13, 14, 16, and 17. No attempt has been made to include on this map the hundreds of smaller lakes and streams.

Reproduced by permission from the American Fern Journal sades such as those forming the main attraction of the magnificent scenery towards the mouth of the Nipigon River. This diabase country is wild and rough—a wilderness of mountain, cliff, talus-slope, bog, lake, and rushing waters with frequent waterfalls, practically all in forest, although burned over in places. It is a botanists' and sportsmen's paradise, but woe to him who is not able to live in a tent or to pack things on his back over rough trails, or whose nerves are not equal to the test of the hordes of black flies by day, "no-see-ums,"[2] at dusk and daybreak, and mosquitoes by night!

The forests in this region consist of but few types. Black spruce occurs everywhere in the mature muskegs and also in crevices on the cliffs and more barren rocky surfaces where soil is scanty or none. On the burned-over areas, of course, the white birch and trembling aspen prevail, while in favorable situations, where a rather deep forest soil has accumulated, the forest is nearly pure balsam and spruce, or, more usually, a mixture of these trees with white birch and trembling aspen and an undergrowth of mountain ash and moose maple (*Acer spicatum*).

To the east of Lake Nipigon the country is less rough, there being much glacial till and sand-plain between the rock hills, though still with numerous lakes and bogs, the spruce muskeg covering large areas. To the northwest of Lake Superior, along the line of the Canadian Government Railway, about thirty miles from Fort William, there is a mountain range which, with its similar altitude and rounded contours, reminds one of the ranges of the Allegheny Mountains, though with some very steep cliffs and rocky gorges. Beyond this range, farther northwest, the country becomes rather monotonous with wide stretches of spruce muskeg and lakes and ponds innumerable, bounded by flat stretches of Banksian pine sand-plain or by glacial moraines, or by low knobs of rock made round and smooth by glaciers.

The following list enumerates the specimens of Sphagnum collected during the years 1912, 1913, and 1914. These were identified for us by Dr. A. LeRoy Andrews. While not yet worked over, the 1916 and 1917 specimens will not likely show much in addition, other than to extend the areas of some of the species eastward from Lake Nipigon to Jellicoe and Long Lake, and to add further localities within the general area covered by the three years' collections reported herewith. The ranges given for the species and the order of sequence and the nomenclature in the list is that adopted by Andrews in the *North American Flora*. All specimens were collected by O. E. and Grace K. Jennings, unless otherwise stated. The numbers in parenthesis are the writer's field-numbers for his Ontario collections.

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[2] Minute blood-sucking flies variously known as Midges, Sand-flies, Punkies, or No-see-ums, belonging to the genus *Culicoides*. These pests were especially annoying at our station at Orient Bay, Lake Nipigon. The "Black Fly" of the North Woods is a dark-colored, hump-backed, short-legged fly (genus *Simulium*) about half as long as a house fly. It bites with a lance-like cut from which blood flows, especially along the edge of one's hat-band, under the collar, and around the wrists. This pest is much worse during the first half of the summer, and especially after a wet spring and its favorite habitat is a black spruce-sphagnum muskeg. See Miall's *Aquatic Insects* for some interesting reading concerning the life of the Black Fly.

Annotated List of Species

1. *Sphagnum magellanicum* Brid. (*S. medium* Limpr.).

Margin of pond, Silver Islet, Thunder Cape, June 23, 1912 (No. *336*) O. E. Jennings & R. H. Daily; Bog margin of twin lakes 1 mile south of Nipigon, July 2, 1912 (*634*) O. E. Jennings & R. H. Daily; Spruce muskeg west of Heron Bay R. R. Station, July 20, 1912 (*1355*) O. E. Jennings & R. H. Daily; Open bog near Porphyry Island lighthouse, July 23, 1913 (*3689*); Spruce muskeg at Fort William Mission, Sept. 5, 1913 (*5208*, *5210*); Open bog at Orient siding, south end of Lake Nipigon, July 2, 1914 (*6160*); Boggy margin of little lake between Orient Bay and Virgin Falls, south end of Lake Nipigon, July 8, 1914 (*6335*) and July 19, 1914 (*6537*); Spruce muskeg on gentle slope at north end of Ombabika Bay, north end of Lake Nipigon, Aug. 17, 1914 (*7046*); Muskeg at east end of Pelican Lake, Graham, Sept. 5, 1914 (*7481*). Macoun reports it from Lake Nipigon[3].

The distribution of this species is: "Labrador southward to Alabama and Florida; [Central Pennsylvania—O. E. J.]; Michigan; Minnesota; California; Vancouver Island to Alaska; Bermuda; also in Europe, Asia, and South America."[4] In common with a considerable number of other plants occurring in northwestern Ontario, this species, as far as its distribution is known, has in North America a range which may be likened to an hour-glass, wide at both ends and narrowing down in the middle. However, the abundant occurrence of this species in practically all parts of the region visited would indicate that its range may extend much farther to the north in the middle portion of Canada.

It is of interest at the present time to note that this is practically the only one of the good surgical sphagnums occurring in northwestern Ontario.[5] Not having in mind this practical use of the moss when collecting the specimens,

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[3] Macoun, in Catalogue of Canadian Plants, Part VI—Musci. 1892 (Geol. & Nat. Hist. Surv. Canada), reports the following sphagnums from the general region covered by our expeditions. The reports are taken verbatim from the Catalogue without any attempt being made to straighten out the synonymy, nor to verify the reports according to more modern treatments of the genus:

1. *S. Girgensohnii* Russ. "On the portage path, four miles east of Kakabeka Falls, west of Lake Superior." "Peat bog, Newboro, near Kingston, Ont. (*Prof. Lawson*)."
2. *S. fuscum* var. *fuscescens* Warnst. "In a swamp near the Pic, Lake Superior."
3. *S. acutifolium* var. *pallescens* Warnst. "In the hollows of granite rocks on a small island off the northeast coast of Lake Superior, nearly opposite the lower end of Michipicoten Island."
4. *S. acutifolium* var. *rubrum* Warnst. "Peat bogs, Lake Nipigon, Ont. (*Macoun*)."
5. *S. teres* var. *squarrosulum* Lesq. "In a swamp 15 miles west of Port Arthur, Lake Superior (*Macoun*)."
6. *S. compactum* var. *subsquarrósum* Warnst. "Bogs along Nipigon River, Ont."
7. *S. subsecundum* Nees. "Bogs, Lake Nipigon, Ont."
8. *S. cymbifolium* Ehrh. Very common in peat bogs throughout Ontario, but seldom separated from the variety," i. e. var. *laeve* Warnst.
9. *S. medium* var. *laeve* f. *purpurascens* Russ. "Peat bogs along Lake Nepigon."

[4] Andrews. A. LeRoy. North American Flora.

[5] Nichols, G. E. War Work for Bryologists. BRYOLOGIST **21**: 53–56. July, 1918.

Hotson, J. W. Sphagnum as a Surgical Dressing. Science, N. S. **48**; 203–208. Aug. 30, 1918.

I did not note the relative abundance of this species. Gathering together my various ecological notes and other data it appears quite certain, however, that *S. magellanicum* occurs in considerable quantity throughout most of the region but it is practically always closely associated with a number of other species and practically always occurs with *Myrica* or *Chamaedaphne*, or in black spruce muskegs, in each case likely to be mixed with twigs and other foreign matter. Generally speaking, this would not likely be a good region for extensive gatherings of the moss for surgical purposes, but I have no doubt that careful search among the bogs of the North Shore district of Lake Superior would reveal here and there supplies of good quality.

1*a*. *Sphagnum magellanicum* Brid.—The form called by Warnstorf *S. subbicolor* Hampe.

Bog margin of little lake one-half mile north of Rossport, July 15, 1912 (*1158*) O. E. Jennings & R. H. Daily; Margin of Perry Pond, Silver Islet, July 13, 1913 (*3507*); In alder thicket along rivulet in deep spruce-balsam woods, Porphyry Island, Lake Superior, July 23, 1913 (*3692*).

2. *Sphagnum compactum* D. C. (*S. rigidum* Schimp.).

Near Rossport, July 14, 1912 (*1053b*) O. E. Jennings & R. H. Daily. Bogs along Nepigon River, according to Macoun (*see* footnote, p. 72). With a reported range (*North American Flora*) of "Greenland; Labrador southward to Florida and Alabama; [also central Pennsylvania—O. E. J.]; Illinois; Vancouver Island to Alaska; also in Europe and Asia." The additional stations extend the mid-continental range of the species considerably to the north.

3. *Sphagnum Wulfianum* Girg.

In dark, moist Balsam-Spruce-Thuya-Birch woods, between granite hills one mile northwest of Heron Bay R. R. station, July 22, 1912 (*1447b*) O. E. Jennings & R. H. Daily; Spruce muskeg on top of mountain south of Nipigon, Aug. 27, 1912 (*2336, 2326b, 2327*) O. E. & G. K. Jennings and R. H. Daily; Under spruce at margin of bog, Porphyry Island, Lake Superior, July 26, 1913 (*3803*); Little muskeg on glacial till north of Ombabika Post, Aug. 17, 1914 (*6756*); Forming the high mounds in spruce muskeg at head of Ombabika Bay, north end of Lake Nipigon, Aug. 17, 1914 (*7038*), see *Pl. XXVII, fig. 4*.

In the regions visited, *S. Wulfianum* seems to be almost always prominently associated with the black spruce, often forming mounds of considerable size. North of the head of Ombabika Bay, in the extensive spruce muskeg covering the gently ascending slope, the mounds were often three or four feet in diameter and as much as a foot high. In North America the reported range of the species is from Greenland and eastern Canada to Connecticut; New York; Minnesota; and Vancouver Island. It is also reported from Siberia and northern Europe, and its abundance in the Lake Superior and Lake Nipigon districts would indicate a considerable mid-continental range in America to the northwards.

4. *Sphagnum squarrosum* Crome.

In spruce muskeg margin of lakelet, Ft. William Mission, June 19, 1912 (*180*) O. E. Jennings & R. H. Daily; Exposed top of Sleeping Giant, Thunder Cape, June 27, 1912 (*426*) O. E. Jennings & R. H. Daily; Under spruce-alder thicket along margin of cold rivulet, Porphyry Island, L. Superior, July 23, 1913 (*3692*) and July 26, 1913 (*3796*); Maloney Harbor, Black Bay Peninsula, Lake Superior, Aug. 17, 1913 (*4871*); Boggy woods east side Loon Lake, Sept. 9, 1913 (*5268*); In boggy woods along trail west of Sioux Lookout, Sept. 7, 1914 (*7538*).

From arctic regions ranging along the North American coasts as far south as New Jersey and California, the species has been found inland in central Pennsylvania, Ohio, Michigan, Wisconsin, and Minnesota, and our records show it rather general along the northwest shore of Lake Superior and to the northwest of there. However, we did not get it from Nipigon nor east of there along the North Shore, nor from the Lake Nipigon district. It occurs closely associated with the black spruce in muskegs and with alders fringing cold rivulets.

5. *Sphagnum teres* (Schimp.) Angstr. (*S. squarrosulum* Lesq.).

Mixed with other sphagnums in boggy margin of small lake between Orient Bay and Virgin Falls, south end Lake Nipigon, July 19, 1914 (*6540*). Macoun reports it along the Nipigon River (*see* footnote, p. 72.) Ranging south along the coasts to New Jersey and California, this species has been found inland in Pennsylvania, New York, Michigan, and Colorado, so that the Lake Nipigon station marks a still farther extension of range northwards in the interior of the continent.

6. *Sphagnum recurvum* Beauv. (*S. amblyphyllum* Warnst.).

Marginal bog of Six-mile Lake, Thunder Cape, Aug. 5, 1912 (*1829*) O. E. & G. K. Jennings & R. H. Daily; Ft. William Mission bog, Sept. 5, 1913 (*5204*); Boggy margin of little lake between Orient Bay and Virgin Falls, south end Lake Nipigon, July 19, 1914 (*6538 & 6542*); Along wet woods trail west of Sioux Lookout, Sept. 7, 1914 (*7527*); Bog at western edge of Graham, Sept. 7, 1914 (*7578*).

According to *North American Flora*, this species ranges from "Labrador southwards to Florida and Louisiana; Colorado; Washington to Alaska; also in South America, Europe, and Asia, and reported from Africa." No mention is made of any stations in the Great Lakes region, although it occurs commonly in northwestern Pennsylvania. Our collections would indicate a considerable mid-continental range for it, especially northwards.

6a. Sphagnum recurvum var. *tenue* Klingr. (*S. parvifolium* Warnst.).

Boggy margin of lake near Ft. William Mission, June 19, 1912 (*179 & 184*) O. E. Jennings & R. H. Daily; Spruce muskeg west of Heron Bay R. R. station, July 20, 1912 (*1356*) O. E. Jennings & R. H. Daily; In small open bog with *Sarracenia, Iris, Chamaedaphne*, etc., Orient siding, south end Lake Nipigon, July 2, 1914 (*6161, 6180, 6181*); Open bog at western edge of Graham, Sept. 7, 1914 (*7585*).

In North America this species ranges from Greenland to Pennsylvania, and from Washington to Alaska, occurring inland in central Pennsylvania, Michigan, Minnesota, Nebraska, Montana, and Idaho. Our collections show it to have a rather general distribution in northwestern Ontario also. It usually occurs in rather open bogs with *Sarracenia, Iris*, Cassandra, etc.

7. *Sphagnum subsecundum* Nees. (*S. contortum* Schultz, *S. laricinum* Spruce).

Boggy woods near shore, Edwards Island, Lake Superior, July 24, 1913 (*3731*); In *Myrica* bog at mouth of creek, Orient Bay, Lake Nipigon, July 18, 1914 (*6506*). Macoun also reports it for Lake Nipigon. Dr. Andrews notes that *No. 3731* is the form called by Warnstorff, *S. contortum* Schultz.

With a distribution from Greenland and Labrador to Florida, Louisiana, and Mexico, and from California to Washington; also Europe and Asia, and "regarded as cosmopolitan," our collections would indicate it, for the North Shore and Lake Nipigon regions, as a rather rare moss occurring near the edges of large bodies of water.

8. *Sphagnum Girgensohnii* Russow. (*S. strictum* Lindb.).

Together with the *subbicolor* form of *S. magellanicum* (*No. 1153*), this forms most of the open bog margin of a lakelet one-half mile north of Rossport, July 15, 1912. O. E. Jennings & R. H. Daily; Boggy woods at margin of Perry Lake, Silver Islet, Thunder Cape, July 7, 1913 (*3423*); Alder swamp near Grassy Lake, Silver Islet, July 16, 1913 (*3536*); Margin of pond in woods, Fluor Island, Lake Superior, Aug. 16, 1913 (*3966*); Periodically dry pocket on unforested rocky top of knob, Little Fluor Island, Aug. 7, 1913 (*4002*); same island, Aug. 9, 1913 (*4030*); Spruce muskeg at head of Ombabika Bay, north end of Lake Nipigon, Aug. 14, 1914 (*6907*, *6910*, *7045*); Rock pocket on bare top of Sioux Lookout Mount, Sept. 4, 1914 (*7398*); Open bog at western edge of Graham, Sept. 7, 1914 (*7576*). Reported by Macoun: "On the portage path, four miles east of Kakabeka Falls, west of Lake Superior." (*See* footnote, p. 72.)

Distributed from Greenland and Labrador to New Jersey and Pennsylvania; in West Virginia; Ohio; Minnesota; and from Oregon to Alaska; also Europe and Asia, our collections show it to have a quite general distribution in northwestern Ontario.

9. *Sphagnum robustum* (Russow) Roell. (*S. Russowii* Warnst.).

On spray-swept rock shore of Lake Superior, three miles northwest of Rossport, July 15, 1912. O. E. Jennings & R. H. Daily (*1121*); On steep granite slope, south side of Jackfish Island, Lake Superior, July 19, 1912 (*1260*) O. E. Jennings & R. H. Daily; Grassy bog at upper end of Grassy Lake, Silver Islet, Thunder Cape, July 9, 1913 (*3465d*); With *S. magellanicum* (*3689*) in bog near Porphyry Island lighthouse, Lake Superior, July 23, 1913; Along wet portage in spruce forest on North Ombabika Peninsula, Lake Nipigon, Aug. 19, 1914 (*7184c*, *7190*).

"Greenland and Labrador to Massachusetts and New York; Colorado; Montana; Idaho; reported from Washington; also in Europe and reported from Asia." Evidently also rather generally distributed along the North Shore and northward around Lake Nipigon.

10. *Sphagnum fuscum* (Schimp.) Klingr.

Bog at Ft. William Mission, June 19, 1912 (*185*, *186*) O. E. Jennings & R. H. Daily; North face of cliff in deep woods, Silver Islet, Thunder Cape, June 23, 1912 (*310s*) O. E. Jennings & R. H. Daily; Spruce muskeg west of Heron Bay

R. R. station, July 20, 1912 (*1354*, *1357*) O. E. Jennings & R. H. Daily; Spruce bog two miles northwest of Current River Park, Port Arthur, Aug. 2, 1913 (*1728*); Swampy spot between sandhills three miles southeast of Stanley, June 30, 1913 (*3200*); Base of old stump, shore Surprize Lake, Thunder Cape, July, 1913; Boggy spruce woods east side Edwards Island, Lake Superior, July 24, 1913 (*3731*); Forming dense, rounded, brownish-green mounds in outer edge of bog near encircling black spruce forest, Porphyry Island, July 26, 1913 (*3791*); Grassy bog, Grassy Lake, Thunder Cape, July 9, 1913 (*3459*); Spruce muskeg, Maloney Harbor, Magnet Point, Lake Superior, Aug. 17, 1913 (*4827*, *4844*); In bog at Fort William Mission, Sept. 5, 1913 (*5205*); Forming with *No. 5238* (*S. capillaceum*) mounds in spruce muskeg, east side Loon Lake, Sept. 9, 1913; Boggy margin of little lake between Orient Bay and Virgin Falls, south end Lake Nipigon, July 19, 1913 (*6539*); Open bog western outskirts of Graham, Sept. 7, 1914 (*7581*, *7582*). Macoun reports *S. fuscum* var. *fuscescens* Warnst. from "Swamp near the Pic, Lake Superior." (*See* footnote, p. 72.)

Recorded from Europe and Asia, this species ranges south along North American coasts to Connecticut and New York in the east and Washington in the west. Inland it occurs in Michigan and Minnesota, Montana and Colorado, and our collections show it general along the north shore of Lake Superior, and north to Lake Nipigon and northwest to Sioux Lookout. We did not find it, however, at the northern end of Lake Nipigon. It usually forms dense mounds at the outer edges of bogs or associated with the black spruce.

11. *Sphagnum Warnstorfii* Russow.

Bog margin of lakelet near Ruby, southeast of Nipigon, July 2, 1912 (*667*) O. E. Jennings & R. H. Daily; Open bog, Sawbill Lake, Thunder Cape, June 27, 1912, O. E. Jennings & R. H. Daily; Deep woods southwest of Silver Islet, Thunder Cape, Aug. 4, 1912 (*1812*) O. E. & G. K. Jennings & R. H. Daily; Grassy bog, upper end Grassy Lake, Thunder Cape, July 9, 1913 (*3466*) and in alder fringe (same place); Marginal bog, Perry Pond, Silver Islet, July 13, 1913 (*3508*); Spruce muskeg, Maloney Harbor, Magnet Point, Lake Superior, Aug. 17, 1913 (*4870*, *4823*); Wet meadow in advance of muskeg, two miles east of Loon Lake, Sept. 14, 1913 (*5386*); Deep woods in narrow rocky gorge, Orient, southeast corner Lake Nipigon, July 6, 1914 (*6305*); Alder thicket, mouth of creek, Orient Bay, July 18, 1914 (*6502*); Boggy margin of cove, Rangers' Point, Orient Bay, July 21, 1914 (*6551*); Muskeg at edge Ombabika Bay, north end Lake Nipigon, Aug. 15, 1914 (*6994*); Open bog margin, head Ombabika Bay, Aug. 17, 1914 (*7033*); Spruce muskeg at west end of Pelican Lake, Graham, Sept. 5, 1914 (*7478*, *7479*, *7480*).

"Greenland and Labrador to Connecticut and New York; [northwestern Pennsylvania—O. E. J.]; Michigan; Minnesota; Colorado and northward in Rocky Mountains to Alaska; also in Europe and reported from Asia." Our collections show it generally distributed in Ontario, at least from the northwestern shore of Lake Superior from Fort William to Nipigon, and north and west from there, but we did not find it along the North Shore at any of the stations east of Nipigon.

12. *Sphagnum capillaceum* (Weiss) Schrank, Baier. (*S. acutifolium* Ehrh.). *Thuya-Larix-Picea* bog, along outlet of depression, Silver Islet, Thunder Cape, June 23, 1912 (*348*) O. E. Jennings & R. H. Daily; Wooded talus slope of mountain south of Nipigon, July 2, 1912, O. E. Jennings & R. H. Daily; In hollow on rounded bare rock knob near Lake Helen Mission, Nipigon, July 8, 1912. O. E. Jennings & R. H. Daily (*818*); Dense spruce-sphagnum muskeg at Pays Plat, July 15, 1912 (*1981*) O. E. Jennings & R. H. Daily; Steep granite slope, side south Jackfish Island, Lake Superior, July 19, 1912 (*1264*) O. E. Jennings & R. H. Daily; Dense spruce-sphagnum muskeg around Ruby Lake, four miles southeast of Nipigon, Aug. 25, 1912 (*2269*) O. E. & G. K. Jennings & R. H. Daily; Boggy woods towards top of Porphyry Island, Lake Superior, July 23, 1913 (*3634*); Edwards Island, forming a large part of ground cover together with black spruce, July 25, 1913 (*3741*); Spruce woods on top of knob, Little Fluor Island, Aug. 3, 1913 (*3840*); Under spruce-birch cover on islet near Fluor Island, Aug. 4, 1913 (*3924*); Forms mounds on bare bluff above Fluor Island channel, Aug. 10, 1913 (*4043, 4043a*); Forming mounds in spruce muskeg east of Loon Lake, Sept. 9, 1913 (*5238, 5239, 5240*); Boggy woods east of R. R., Loon Lake, Sept. 9, 1913 (*5249*); Wet meadow at edge of muskeg in old lake basin, two miles east of Loon, Sept. 14, 1913 (*5387*); Muskeg on glacial till north of Ombabika Post, Aug. 9, 1914 (*6726*) and Aug. 10 (*6790, 6795, 6796b, 6799*); Alder thicket along stream in burn, Ombabika Post, Aug. 11, 1913 (*6801*), near shore of Ombabika Bay, Aug. 13 (*6898b*); Floor of great spruce muskeg at head of Ombabika Bay, Lake Nipigon, Aug. 14, 1914 (*6911, 6914*); Floor of spruce woods along portage on North Ombabika Peninsula, Aug. 19, 1914 (*7184, 7184b*); Open bog at west edge of Graham, Sept. 7, 1914 (*7572, 7575, 7579*); Along lake shore at Sioux Lookout, Sept. 3, 1914 (*7315*).

Recorded from Europe, Asia, and South America, this species occurs in North America from Greenland and Labrador to Virginia and central Pennsylvania; also Wisconsin and Minnesota; Colorado; and from Washington to Alaska. This was collected more often than any other species during our expeditions and can safely be said to be the most common sphagnum in that part of Ontario, at least. In many of the mature black spruce-sphagnum muskegs this species really forms the floor, often nearly pure over considerable patches, and sometimes forming also rather distinct mounds. In the extensive and beautiful example of a well-developed black spruce muskeg covering the gentle slope at the head of Ombabika Bay, at the north end of Lake Nipigon, the spruces reach a fair size, forming a dense and rather dark forest cover, while the floor for acres and acres is a deep bed of billowy sphagnum into which one sinks nearly to the knees, or, perhaps, breaks through a twiggy mat to "bark his shins" on some buried tree trunk. The real floor of this forest consists of *Sphagnum capillaceum*, but there is more or less of a mixture of *S. Girgensohnii* and *S. magellanicum*, while the highest mounds are composed of *S. Wulfianum*. See *Pl. XXVII, fig. 4*.

Carnegie Museum, Pittsburgh, Pennsylvania

EXPLANATION OF PLATE XXVII

1. Along the Nipigon River, looking south from Nipigon. Palisades show at right, while at base of the mountain at extreme left is the bog shown in Fig. 3.

2. Looking north from north end of Ombabika Bay, L. Nipigon; a gentle glacial till slope covered with spruce-sphagnum muskeg, as shown in Fig. 4.

3. Spruce-sphagnum muskeg southeast of Nipigon. *S. capillaceum* forms most of this floor in a deep bed (*No. 2269*).

4. Spruce-sphagnum muskeg north of Ombabika Bay, L. Nipigon. Contains *Sphagnum magellanicum* and *S. Girgensohnii*, most of the floor being covered with *S. capillaceum* above which rise mounds of *S. Wulfianum*.

5. Locomotive Island, Ombabika Bay, north end of L. Nipigon. Angular blocks of Keewenawan diabase supporting thin stunted forest of black spruce. Most talus slopes in Nipigon region are of this character.

(Photographs by O. E. and Grace K. Jennings)

ELLEN HUTCHINS—A BIOGRAPHICAL SKETCH

W. H. PEARSON.

Professor Evans having dedicated a new hepatic, *Herberta Hutchinsiae*, to the memory of Miss Hutchins, a short sketch of her life and work may not be unacceptable to the readers of the BRYOLOGIST There have been many women who have distinguished themselves in the realm of science, and amongst those of the early part of the last century in the domain of botany stands preeminently the name of Miss Hutchins. Robert Brown, one of the greatest of British botanists, established the genus *Hutchinsia* in her honor; Sir Joseph Paxton, in referring to the genus, says, "in compliment to Miss Hutchins, an accomplished Irish cryptogamist." *Hutchinsia petrea* is one of our early flowering cruciferous plants, found in limestone districts, and I always feel a thrill of pleasure when I see it on wall or rocks in some of our picturesque valleys in Derbyshire and Wales. Miss Hutchins was the first to find the rare and beautiful hepatic, *Jubula Hutchinsiae*, which Sir William Jackson Hooker named after the discoverer.

Readers of Professor Evans's severely scientific description of *Herberta Hutchinsiae* would scarcely imagine that such an apparently dry subject could conjure up remembrances which stir the blood, but I treasure as one of my most valued possessions a microscopic slide of *Scapania purpurascens*, given me to mount nearly forty years ago by Dr. Carrington, from specimens collected by Miss Hutchins. It is still a beautiful object, having retained its color for over one hundred years.

In a valuable contribution to the "Proceedings of the Royal Irish Academy" for 1915, by Canon Lett, on a "Census Report on the Mosses of Ireland," a chronological list of Irish muscologists is given, Miss Hutchins having the place of honor so far as length of description is concerned, and I cannot do better than give the Canon's account of her life and work, with the hope that it may encourage other women to study this delightful field of botany:

"Miss Ellen Hutchins, daughter of Thomas Hutchins, was born in 1785 at Ballylickey, between Bantry and Glengarriff, in the County of Cork, and died in 1815, and was buried in Bantry churchyard. She was educated in Dub-